

1    1. A diaphragm tank, comprising:  
2        an outer shell;  
3        a flexible diaphragm;  
4        a liner sealingly connected to the flexible diaphragm to define a bladder, the liner  
5              including an orifice and a raised portion surrounding the orifice defining  
6              an annular groove;  
7        a passage fitting providing fluidic communication between an exterior of the outer  
8              shell and the bladder and having a neck;  
9        an o-ring disposed in the annular groove;  
10      an annular holder mounted on the passage fitting and having a groove, the annular  
11              holder adapted to rest on the raised portion and retain the o-ring within the  
12              annular groove; and  
13      a gasket disposed between the liner and the outer shell;  
14      wherein a portion of the neck is bent to retain the holder against the o-ring,  
15              thereby preventing fluidic communication between a space between the  
16              liner and the outer shell and the bladder along an outer wall of the passage  
17              fitting.

18    2. The diaphragm tank of claim 1, wherein the passage fitting is disposed partially  
19              inside the outer shell and partially outside the outer shell and comprises a  
20              shoulder adapted to restrict motion of the passage fitting into diaphragm tank.

21    3. A diaphragm tank, comprising:  
22        an outer shell;  
23        a flexible diaphragm;  
24        a liner sealingly connected to the flexible diaphragm to define a bladder, the liner  
25              including an orifice and a raised portion surrounding the orifice defining a  
26              relief surface;  
27        a passage fitting providing fluidic communication between an exterior of the outer  
28              shell and the bladder and having a neck;

1       an o-ring disposed on the relief surface;  
2       an annular holder mounted on the passage fitting and having a groove, the annular  
3                   holder adapted to retain the o-ring on the relief surface; and  
4       a gasket disposed between the liner and the outer shell;  
5       wherein a portion of the neck is bent to retain the holder against the o-ring,  
6                   thereby preventing fluidic communication between a space between the  
7                   liner and the outer shell and the bladder along an outer wall of the passage  
8                   fitting.

9     4. The diaphragm tank of claim 3, wherein the passage fitting is disposed partially  
10           inside the outer shell and partially outside the outer shell and comprises a  
11           shoulder adapted to restrict motion of the passage fitting into diaphragm tank.

12    5. A liner for use with a diaphragm tank and a through-wall connector, the through-  
13           wall connector comprising a passage fitting having a neck and adapted to extend  
14           into the diaphragm tank, an o-ring mounted on the passage fitting, an annular  
15           holder mounted on the passage fitting and having an annular groove, wherein:  
16           the liner has a raised portion defining an annular groove to receive the o-ring, and,  
17           when the neck is bent over the holder, the annular groove on the holder  
18           fits around the raised portion and the o-ring, thereby preventing fluidic  
19           communication from an exterior side of the liner to an interior side of the  
20           liner along an outer surface of the passage fitting.

21    6. A liner for use with a diaphragm tank and a through-wall connector, the through-  
22           wall connector comprising a passage fitting having a neck and adapted to extend  
23           into the diaphragm tank, an o-ring mounted on the passage fitting, an annular  
24           holder mounted on the passage fitting and having an annular groove, wherein:  
25           the liner has a raised portion having a relief surface on which the o-ring is  
26           disposed, and, when the neck is bent over the holder, the annular groove  
27           on the holder fits around the o-ring disposed on the relief surface of the  
28           passage fitting, thereby preventing fluidic communication from an exterior

1           side of the liner to an interior side of the liner along an outer surface of the  
2           passage fitting.

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